

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-12 (previously cancelled).

13. (Currently Amended) A high throughput method for determining whether a compound or a mixture of compounds is suitable for intended use as a drug or a natural product, said method comprising:

- (a) placing a first solution comprising biological material having higher molecular weights than the compounds compound or the mixture of compounds, into an ultrafiltration chamber, said chamber comprising a membrane with pore sizes that will not allow passage of the biological material out of the chamber;
- (b) placing the compound or the mixture of compounds into the ultrafiltration chamber, said chamber comprising a membrane with pore sizes that allow passage of the compound or the mixture of compounds out of the chamber;
- (c) providing a continuous flow of a supportive solution to the ultrafiltration chamber that facilitates reactions between the biological material and the compound or the mixture mixtures of compounds to produce products of the reactions wherein the ultrafiltration chamber allows passage of the products out of the chamber to form a second solution, but does not allow passage of the biological materials;
- (d) analyzing the second solution comprising the products of the reactions between the biological material and the compound or the mixture of

compounds, to determine whether the compound or any of the mixture of compounds is suitable for use as a drug or natural product.

14. (Previously Added) The method of claim 13, wherein the biological material is selected from a group consisting of a protein, a peptide, an oligonucleotide, an oligosaccharide, a microsome, a cell, a tissue, an enzyme, DNA and RNA.

15. (Previously Added) The method of claim 13, wherein the compound or mixture of compounds is selected from the group consisting of a natural product, a combinatorial library, a drug, a drug mixture, a xenobiotic compound, a mixture of xenobiotic compounds, an endogenous compound, a mixture of natural products, and a mixture of endogenous compounds.

16. (Previously Added) The method of claim 13, wherein the supportive solution is selected from a group consisting of a buffer, a nutrient medium, or a combination thereof, said supportive solution maintaining the biological material in a state wherein the biological material reacts with a compound or mixture of compounds in the sample.

17. (Currently Amended) The method of claim 16, wherein the supportive solution facilitates the reactions of the biological material with the first solution and facilitates the removal of the compound ~~compounds~~, or the mixture of compounds and products of the reactions between the compound or the mixture of compounds and the biological material, by washing them through the ultrafiltration chamber into the second solution.

18. (Currently Amended) The method of claim 13, wherein the compound or the mixture of compounds is added by means of injection.

19. (Currently Amended) The method of claim 13, wherein the suitable conditions for reactions between the biological material in the first solution with the compound or the mixture of compounds, comprises mixing the sample with the biological material to achieve a homogeneous distribution of sample, controlling temperature to maintain function of the biological material, providing adequate concentration of sample and sufficient amount of biological material to facilitate analysis, providing sufficient time for interaction, and controlling atmospheric gases to maintain

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function of the biological material.

20. (Previously Added) The method of claim 13, wherein the analyzing of the second solution is by mass spectrometry.

21. (Currently Amended) The method of claim 13, wherein the products of the reactions comprise metabolites, glutathione adducts, and small molecules. ~~to determine cellular absorption.~~

22. (Previously Added) The method of claim 13, wherein multiple chambers with ultrafiltration membranes are arranged in parallel with a single mass spectrometer for step d.

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23. (Currently Amended) A kit for analyzing a compound or a mixture of compounds to determine if a compound or any of the mixture of compounds are suitable for use as a drug or natural product, by analyzing reaction products between biological material and the compound or the mixture of compounds, said kit comprising in separate containers, (a) an ultrafiltration membrane with pore sizes that allow passage of the compound or mixture of compounds and reaction products, but not passage of the biological material, (b) a first solution containing the biological material, and (c) standards against which to compare analysis of the products of reactions between the first solution and the compounds or mixture of compounds to determine suitability as a drug or natural product.

24. (Currently Amended) A high throughput method for determining characteristics of a compound or a mixture of compounds, the method comprising:

- (a) interacting the compound or the mixture of compounds with a biological material in a first solution or suspension to form products;
- (b) providing an ultrafiltration membrane in contact with the first and a second solution with pores of suitable size to allow the products to pass from the first solution through the membrane into the second solution; and
- (c) analyzing the products in the second solution.

25. (Previously Added) The method of claim 24, wherein the compound in the first solution is a drug, the biological material that interacts with the drug is selected from the group consisting of cytochrome P40, UDP-glucuronyltransferases, and glutathione transferase, and analysis

is by pulsed ultrafiltration mass spectrometry.

26. (Previously Added) The method of claim 24, wherein the first solution comprises chlorpromazine and rat liver microsomal cytochromes P450, NADPH is added, and results of chlorpromazine oxidation are analyzed by pulsed ultrafiltration positive ion electroscopy mass spectrometry.

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27. (Previously Added) The method of claim 24, wherein rat liver microsomes containing cytochrome P450 and microsomal glutathione S-transferase interact with butydimethyl phenol, NADPH and glutathione on the first solution side of the ultrafiltration membrane, and metabolites produced by the interaction pass through the membrane into a second solution for analysis by negative ion electroscopy-mass spectrometry, wherein the metabolite quinine methide reacts with water or with glutathione to form an adduct.

28. (Previously Added) The method of claim 24, wherein epithelial cells and xenobiotic compounds are in the first solution, compounds that are excluded from entering the cells elute first through the ultrafiltration membrane, compounds that enter the cells may elute later, and analysis of bioavailability is determined by inverse correlation with eluting time.

29. (Previously Added) A method to assess drug metabolism using a high throughput system, the method comprising:

(a) interacting the drug with hepatic microsomes and the cofactor NADPH in a first solution on one side of an ultrafiltration membrane with pore sizes that allow all metabolites to pass through to the other side; and

(b) analyzing the metabolites that passed through the membrane into a second solution to assess drug metabolism.

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30. (New) The method of claim 21, wherein concentrations of the small molecules determine cellular permeability or absorption.